Missouri Department of Natural Resources Comments
On
Draft Final Environmental Baseline Survey Report
St. Louis Army Ammunition Plant
St. Louis, MO
May 30, 2000

1. Research must be conducted to determine all the steps in the manufacturing process for SLAAP and SLOP, what materials were used, how the materials were used, stored, distributed for use and disposed of. Only then can an adequate potential contaminates of concern list be developed, sample locations selected and appropriate analytical methods chosen. This facility manufactured ammunition and howitzer shells, the environmental investigation of the facility needs to start there rather than focussing on asbestos and lead-based paint.

2. Has an effort been made to locate drawings or blueprints for SLOP and SLAAP, which show the location of storage tanks, process piping, sumps, sewers, material storage and equipment locations? If not, why?

3. The document is fundamentally flawed in that the only comparison made to onsite concentrations is to CALM. The levels in the CALM document are only applicable to sites that are in the Voluntary Cleanup Program. Comparison of onsite values to CALM values may be informative, but CALM values should not be used to decide whether concentrations are acceptable, or whether remedial actions are necessary. The authors should have compared the onsite concentrations to the Any-Use Soil Levels (ASLs). If they wanted industrial values for comparison, they might also want to consider using the industrial screening levels in the USEPA Region 9 PRG tables.

4. Plans for the future use of the property and the fate of the buildings and structures must be made before cleanup levels and risks can be determined.

5. The groundwater cleanup values should be maximum contaminate levels (MCLs), not the CALM groundwater target concentrations (GTARC). Most of the GTARC values listed in the CALM document are MCLs, but not all of them are. The value for lead, for example, should be 15 ppb, not 100 ppb. The document is inconsistent in this regard, and uses 15ppb for Building 3(p.110), but uses 100 ppb for Building 2(p. 103).

6. The scope of work performed to date provides a cursory assessment of the risks associated with the building interiors but is far too limited to assess the environmental contamination at the site, the risks the contamination may pose, or make remedial recommendations.

7. What type of heating system was used at SLAAP, where was it located and how was it fueled?

8. Page ES-1: The St. Louis Army Ammunition Plant (SLAAP) was initially a part of the St. Louis Ordnance Plant. How was the scope of work for the SLAAP environmental baseline survey tailored to investigate areas of potential concern based upon the chemicals and materials stored and used at the SLOP, the manufacturing processes and the disposal practices of the SLOP?

9. Page ES-1: What issues must be addressed before the PCB Notice of Noncompliance from EPA Region 7 can be resolved?

10. Page ES-1: Given the groundwater gradient, how would contaminants from PURO Chemical migrate onto SLAAPS?

11. Page ES-2: Are SLOP activities included in the list of building specific possible areas of environmental concern? If not, why?

12. Page ES-3: Given the very limited investigation performed to date, it seems premature to make remedial recommendations based on the environmental concerns found to date.

13. Page 5, Section 2.3: Where were lagoons located at SLAAP? What building or process did the lagoons serve?

14. Page 10, Section 4.2: Please provide the reference which indicates the loess is overlain by alluvium.

15. Page 11, Section 4.3: How was the search for potable wells conducted? How was it determined these wells were hydrologically downgradient?

16. Page 13, Section 5.0: Were building blueprints and production floor plans for both SLAAP and SLOP activities reviewed as part of the record search? If so, these plans should be included as an appendix.

17. Page 13, Section 5.0: Were production process diagrams developed for both SLAAP and SLOP to identify possible contaminants of concern (PCOC), the storage and handling/distributions systems of each PCOC, waste streams and disposal practices as part of the record and database search? If not, why?

18. Page 19, Section 6.1.1: Why is the photograph unavailable for review?

19. Page 19, Section 6.2: In the second sentence SLOP was constructed in 1941.

20. Page 20, Section 6.2.1: Appendix D was not included in the copy provided to the state.

21. Page 20, Section 6.2.1: In sixth bullet for the 1958 aerial photograph what did the chimneys on the roof of building 3 serve?

22. Page 20, Section 6.2.1: What was the structure between Buildings 3 and 1? Wouldn't the structure have been located on the railroad spurs? Why isn't this structure on the site map?

23. Page 22, 1986 Aerial Photograph: What was stored in the garage constructed southwest of Building 4?

24. Page 23, Section 6.2.2: Was an attempt made to interview any former SLOP personnel who worked in this area or may have some knowledge of SLAAP?

25. Page 23, Section 6.2.3: Why is there no mention of SLOP in this section? SLOP information should be added in detail to the building biographies for all of the buildings used for SLOP production?

26. Page 26, Section 6.2.3: Where were the wash racks located? What was used to wash the shells?

27. Page 26, Section 6.2.3: How was the excess quench oil removed from the shells?

28. Page 26, Section 6.2.3: What type of material was used in the shot blasting equipment?

29. Page 29, Section 6.2.3: The list of possible hazardous materials used at Building 5 should be expanded to include primer contaminants, solvents, and metals.

30. Page 44, Section 8.0: Appendix E was not included in the copy provided to the state.

31. Page 48, Section 8.1: A drawing of the building depicting the location of process equipment, process piping, material and waste storage areas, utilities and description of the billet cutting process should be included.

32. Page 48, Section 8.1: Please provide a description or drawing of a steel billet.

33. Page 48, Section 8.1: What type of dust was collected in the dust collectors and how was it disposed of?

34. Page 48, Section 8.1: Please describe what the process tanks in the rafters stored and how they were used.

35. Page 48, Section 8.1: What did the catch basins store, how were they filled and emptied and how where they part of the process?

36. Page 48, Section 8.1: What was stored in the concrete storage pits, how were they filled and emptied, how was the material used or disposed of and how were they part of the process?

37. Page 48, Section 8.1: What did the eight small pits located directly above (please explain) the break machine pits store, how were they filled or emptied and how were they part of the process?

38. Page 48, Section 8.1: How was the acetylene, quench water, cooling oil, hydraulic oil, machine lubricants and degreasers used in Building 1 stored, distributed, used and disposed of?

39. Page 48, Section 8.1: Where were the acetylene drip pots and how where they used?

40. Page 48, Section 8.1: What types of metals where stored outside Building 1? Where the shells made completely out of steel or were other metals used to make the rotating band or other shell components?

41. Page 49, Section 8.2: A drawing of the building depicting the location of process equipment, process piping, material and waste storage areas, all utilities and description of the production process should be included.

42. Page 50, Section 8.2: How were the hydraulic and fuel oils, solvents (toluene), quench water, machine lubricant oils and soluble oil used in Building 2 stored, distributed and disposed of?

43. Page 50, Section 8.2: What types of pumps were used to support compressed air in Building 2? What type of oil(s) did they contain?

44. Page 50, Section 8.2: As-built drawings should be obtained and reviewed to determine what the pits in the floor of Building 2 were used for.

45. Page 50, Section 8.2: Were samples collected beneath the 1.5 to 6 inch diameter pipes that entered the building through the floor? In not, why?

46. Page 50, Section 8.2: Why weren't the transformers on the second floor sampled to determine if they contained PCB's? Have the transformers leaked or spilled?

47. Page 50, Section 8.2: Why weren't samples of the peeling paint collected and lead analysis performed?

48. Page 51, Section 8.3: A drawing of the building depicting both SLAAP and SLOP process equipment locations, process piping, material and waste storage areas, all utilities and description of the production process should be included.

49. Page 51, Section 8.3: How was the soluble oil, quench oil, hydraulic oil, solvents and paint used in Building 3 stored, distributed, used in the manufacturing process and disposed of?

50. Page 51, Section 8.3: What potential contaminants of concern (PCOC) may be present from SLOP production activities?

51. Page 51, Section 8.3: What were the urea crystals in the basement used for?

52. Page 51, Section 8.3: Why were no samples collected from beneath the quench oil pump room floor?

53. Page 53, Section 8.3: What solvents were used in the former solvent area? How were the solvents stored, used and disposed?

54. Page 54, Section 8.4: What type of oil was used in the air compressors?

55. Page 58, Section 8.7: Was the tar from the roof of building 7 or any other building tested for PCBs?

56. Page 62, Section 9.2: Where were hydraulic oil, soluble oil and motor oils stored and how were they distributed?

57. Page 62, Section 9.2: Have all piping runs and remote fills been located and how many have been sampled?

58. Page 62, Section 9.2: Building three was constructed in 1941 not 1942.

59. Page 62, Section 9.2: Has any investigation been conducted in the vicinity of the 10,000 gallon UST east of building 2?

60. Page 63, Section 9.2: Has any research been conducted to determine what the pipe near UST 105 which contained the red solvent like material with a BTEX concentration of 477,200 PPM was used for? Was any activity undertaken to identify this material and remove it?

61. Page 64, Section 9.3: What was the soluble oil mixed with in the mixing room? Was this room sampled for PCBs?

62. Page 64, Section 9.3: Why weren't the transformer oil and hydraulic oil included in this section? Were other PCB sources omitted?

63. Page 64, Section 9.3: Why did the ASTDR refuse to endorse the health-based risk assessment?

64. Page 64, Section 9.3: Were any samples collected outside Building 3 where the chips were loaded onto the rail cars?

65. Page 65, Section 9.4: Has any investigation for pesticide contamination in or around the remainder of the buildings at SLAAP been performed?

66. Page 66, Section 9.6: Wipe sample data is not reported in concentration per cubic centimeter.

67. Page 67, Section 10.1: Why wasn't the use of the property by the Department of Defense for the production of ammunition included as an sitewide environmental concern?

68. Page 67, Section 10.2.1: The list should also include: light ballast's, soils beneath sumps and along sewer and material distribution lines, coatings that may have been on the steel billets during shipment, tanks in the ceiling, sludges and metals other than steel.

69. Page 69, Section 10.2.2: The list should also include: soils beneath all process equipment, soils beneath all sumps, virgin product and waste lines, transformer oil, gasoline UST to the west, and any cooling or quench oil use areas.

70. Page 69, Section 10.2.3: The list should also include: chip load out area, soils beneath oil pump room, indoor storage tanks and sumps, product and waste lines, solvent storage and disposal areas, paint mixing and use areas, tunnels, and hazardous material mixing areas.

71. Page 72, Section 10.2.4: The list should also include soils beneath the sumps and oil storage areas.

72. Page 72, Section 10.2.5: The list should also include: explosive and propellant storage and use areas, solvent storage and use areas, and the tunnels.

73. Page 72, Section 10.2.6: The list should also include: explosive and propellant storage and use areas, solvent storage and use areas, areas used to seal the primer after insertion and the tunnels.

74. Page 72, Section 10.2.6: Why is the tunnel system developed and used for SLOP only a concern at Building 6?

75. Page 75, Section 10.2.9: Areas used for SLOP activities should be included.

76. Page 75, Section 10.2.11: Are there no asbestos, lead based paint, or light ballast issues?

77. Page 79, Section 11.2: Given the widespread use of oils and petroleum at SLAAP and SLOP, why wasn't a Method 8015 analysis performed?

78. Page 79, Section 11.2: How were the analytical parameters for the sampling locations selected?

79. Page 79, Section 11.2: How were the sampling locations selected?

80. Page 79, Section 11.2: Why were no soil samples collected from beneath sumps, pits, virgin product lines or waste lines?

81. Page 80, Section 11.2.1: Were metal billets coated with any type of material?

82. Page 80, Section 11.2.1: Simply because the material in the sumps has been covered with concrete does not mean is poses no threat to human health and/or the environment. The material may have leaked into the soil and/or groundwater beneath the building contaminating the environment and may present a risk to human health if/when the building is demolished. In addition, the material could be improperly disposed of hazardous waste and require proper disposal.

83. Page 84, Section 11.2.6: Please explain/clarify the location of the tunnel system and how it was used?

84. Page 85, Section 11.2.7: What fuel source for the boiler? How was the fuel stored and distributed?

85. Page 85, Section 11.2.9: Why weren't analyses performed for SLOP contaminates of concern?

86. Page 85, Section 11.2.10: Did the department indicate that after completing the sampling effort the UST issues would be closed? Was the departments guidance document for UST closure reviewed prior to sample collection?

87. Page 85, Section 11.2.10: Why were SLOP potential contaminates of concern only analyzed for in one sample?

88. Page 97, Section 12.1.2.2: Groundwater quality should be compared to MCLs when available, the departments CALM Guidance may only be used by the departments Voluntary Cleanup Section.

89. Page 97, Section 12.1.2.2: What was the source for the high nitrates (2 X MCL) in SWMW-4?

90. Page 99, Section 12.2.1: Why were 1SB1-1 and 1SB1-2 advanced upgradient near Building 1 rather than through the pit floor? How was the sample collection depth selected? The collection depth appears deep given the solubility of the target analytes.

91. Page 99, Section 12.2.1: Given the activities conducted in Building 1, what could be the potential source for the high lead and antimony levels?

92. Page 101, Section 12.2.2: Why was 2SB-1 installed outside upgradient of Building 2 rather than inside beneath the fuel lines?

93. Page 101, Section 12.2.2: Why wasn't the pipeline with the high BTEX levels located near Building 2 sampled?

94. Page 102, Section 12.2.2: What would be potential sources for the VOCs above the CALM target cleanup levels in the groundwater from Building 2 or Building 3 given the groundwater gradient?

95. Page 102, Section 12.2.2: Given the activities in Building 2, what would be the source for the chromium and lead in the surface samples and the VOCs in the sumps?

96. Page 104, Section 12.2.3: Additional investigation beneath the floor were oils spilled/leaked is needed. The list of PCOCs and areas requiring investigation may need to be expanded after a review of the SLOP production process is completed.

97. Page 113, Section 12.2.4: What would be the source for methyl ethyl ketone and vinyl chloride?

98. Page 116, Section 12.2.5: What was the heat source for Building 5 and how was it fueled?

99. Page 116, Section 12.2.5: A better description of the onsite processes is necessary before the Department of Health will concur with the conclusion that "the most likely source of the benzo(a)pyrene is an industrial process generating air emissions." Since the authors haven't done a good job describing onsite processes, it's impossible to eliminate onsite "industrial

processes." Air deposition doesn't explain why there's a ten-fold difference in B(a)P concentrations between samples.

100. Page 116, Section 12.2.5: Additional study will be required before the department will concur that the PAH contamination is ubiquitous due to industrial sources?

101. Page 118, Section 12.2.6: Why aren't the VOC results for SB-2 presented? Given the PID readings it is perplexing that no VOCs were detected.

102. Page 119, Section 12.2.7: How was the boiler in Building 7 fueled?

103. Page 120, Section 12.2.8: The sample collection depth for SVOCs appears deep given their solubility and that the fuel was stored above ground with the piping likely being above ground or in shallow pipe trenches.

104. Page 120, Section 12.2.8: Why wasn't EPA method 8015 run on soil samples for total petroleum hydrocarbon analysis?

105. Page 124, Section 12.2.9: How deep were the sludge pits at Building 9?

106. Page 125, Section 12.2.10: The sample depths were shallow to barely adequate in depth to assess the soil conditions below the bottom of the storage tanks.

107. Page 127, Section 13.1.1: Additional well installations will likely be necessary once additional background research for SLAAP and SLOP is completed. Additional groundwater monitoring will be necessary before a decision can be made regarding groundwater.

108. Page 127, Section 13.1.3: Sampling for lead based paint should be performed in all buildings before any transfer, renovation or demolition is considered.

109. Page 128, Section 13.2.1: Additional study is needed to determine the source and extent of the metals contamination, determine whether contamination exists beneath sumps and along subsurface conduits.

110. Page 128, Section 13.2.1: By stating the impermeable barrier (asphalt) should be maintained, is the Army stating it is ready to institute a deed restriction and develop a stewardship plan for the cap maintenance?

111. Page 131, Section 13.2.2: The scope of work completed at Building 2, and all other buildings/areas, is far to limited to make any recommendations other

than for additional study. The weak effort to identify all the PCOCs, the source(s) or the extent of the contamination is unacceptable.

112. Page133, Section 13.2.3: The scope of work completed at Building 3, and all other buildings/areas, is far to limited to make any recommendations other than for additional study. The weak effort to identify all the PCOCs, the source(s) or the extent of the contamination is unacceptable.

113. Page133, Section 13.2.3: Capping the soil portion of the basement would require the installation of a deed notice and the development of an stewardship plan.

114. Page 134, Section 13.2.4: Additional investigation beneath the sumps and other source areas will be necessary before the state will consider the investigation satisfactory.

115. Page 136, Section 13.2.5: Additional investigation will be necessary after historical research to determine PCOCs and areas of concern.

116. Page 136, Section 13.2.6: Additional investigation will be necessary after historical research to determine PCOCs and areas of concern.

117. Page 138, Section 13.2.7: Additional investigation will be necessary after historical research to determine PCOCs and areas of concern.

118. Page 138, Section 13.2.8: Additional investigation will likely be necessary after historical research to determine precise locations of the ASTs and piping runs. In addition, analysis for total petroleum hydrocarbons will be required.

119. Page 138, Section 13.2.9: Until a search and review of historical documents is completed the department cannot determine if the appropriate sample locations and depths were selected.

120. Page 138, Section 13.2.10: Consultation with the departments Tank Section will be necessary to determine the status of this area.